

Brickmasons, Blockmasons, and Stonemasons

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Significant Points

- Job prospects are expected to be excellent.
- Most entrants learn informally on the job, but apprenticeship programs provide the most thorough training.
- The work is usually outdoors and involves lifting heavy materials and working on scaffolds.
- More than 1 out of 4 are self-employed.

Nature of the Work

Brickmasons, blockmasons, and stonemasons work in closely related trades creating attractive, durable surfaces and structures. The work varies in complexity, from laying a simple masonry walkway to installing an ornate exterior on a highrise building. *Brickmasons* and *blockmasons*—who often are called simply *bricklayers*—build and repair walls, floors, partitions, fireplaces, chimneys, and other structures with brick, precast masonry panels, concrete block, and other masonry materials. Some brickmasons specialize in installing firebrick linings in industrial furnaces. *Stonemasons* build stone walls, as well as set stone exteriors and floors. They work with two types of stone—natural cut stone, such as marble, granite, and limestone; and artificial stone made from concrete, marble chips, or other masonry materials. Stonemasons usually work on nonresidential structures, such as houses of worship, hotels, and office buildings.

When building a structure, brickmasons use 1 of 2 methods, the corner lead or the corner pole. Using the corner lead method, they begin by constructing a pyramid of bricks at each corner—called a lead. After the corner leads are complete, less experienced brickmasons fill in the wall between the corners, using a line from corner to corner to guide each course, or layer, of brick. Due to the precision needed, corner leads are time-consuming to erect and require the skills of experienced bricklayers.

Because of the expense associated with building corner leads, most brickmasons use corner poles, also called masonry guides, that enable them to build an entire wall at the same time. They fasten the corner poles (posts) in a plumb position to define the wall line and stretch a line between them. This line serves as a guide for each course of brick. Brickmasons then spread a bed of mortar (a cement, sand, and water mixture) with a trowel (a flat, bladed metal tool with a handle), place the brick on the mortar bed, and press and tap the brick into place. Depending on blueprint specifications, brickmasons either cut bricks with a hammer and chisel or saw them to fit around windows, doors, and other openings. Mortar joints are then finished with jointing tools for a sealed, neat, uniform appearance. Although brickmasons typically use steel supports, or lintels, at window and door openings, they sometimes build brick arches, which support and enhance the beauty of the brickwork.

Stonemasons often work from a set of drawings, in which each stone has been numbered for identification. Helpers may locate and carry these prenumbered stones to the masons. A derrick operator using a hoist may be needed to lift large stone pieces into place.

When building a stone wall, masons set the first course of stones into a shallow bed of mortar. They then align the stones with wedges, plumb lines, and levels, and work them into position with a hard

rubber mallet. Masons continue to build the wall by alternating layers of mortar and courses of stone. As the work progresses, masons remove the wedges, fill the joints between stones, and use a pointed metal tool, called a tuck pointer, to smooth the mortar to an attractive finish. To hold large stones in place, stonemasons attach brackets to the stone and weld or bolt these brackets to anchors in the wall. Finally, masons wash the stone with a cleansing solution to remove stains and dry mortar.

When setting stone floors, which often consist of large and heavy pieces of stone, masons first use a trowel to spread a layer of damp mortar over the surface to be covered. Using crowbars and hard rubber mallets for aligning and leveling, they then set the stone in the mortar bed. To finish, workers fill the joints and wash the stone slabs.

Masons use a special hammer and chisel to cut stone. They cut stone along the grain to make various shapes and sizes, and valuable pieces often are cut with a saw that has a diamond blade. Some masons specialize in setting marble, which, in many respects, is similar to setting large pieces of stone. Brickmasons and stonemasons also repair imperfections and cracks, and replace broken or missing masonry units in walls and floors.

Most nonresidential buildings now are built with walls made of concrete block, brick veneer, stone, granite, marble, tile, or glass. In the past, masons doing nonresidential interior work mainly built block partition walls and elevator shafts, but because many types of masonry and stone are used in the interiors of today's nonresiden-



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tial structures, these workers now must be more versatile. For example, some brickmasons and blockmasons now install structural insulated wall panels and masonry accessories used in many highrise buildings.

Refractory masons are brickmasons who specialize in installing firebrick and refractory tile in high-temperature boilers, furnaces, cupolas, ladles, and soaking pits in industrial establishments. Most of these workers are employed in steel mills, where molten materials flow on refractory beds from furnaces to rolling machines.

Working Conditions

Brickmasons, blockmasons, and stonemasons usually work outdoors and are exposed to the elements. They stand, kneel, and bend for long periods and often have to lift heavy materials. Common hazards include injuries from tools and falls from scaffolds, but these can often be avoided when proper safety equipment is used and safety practices are followed.

Employment

Brickmasons, blockmasons, and stonemasons held 165,000 jobs in 2002. The vast majority were brickmasons. Workers in these crafts are employed primarily by building, specialty trade, or general contractors. Brickmasons, blockmasons, and stonemasons work throughout the country but, like the general population, are concentrated in metropolitan areas.

More than 1 out of 4 brickmasons, blockmasons, and stonemasons are self-employed. Many of the self-employed specialize in contracting to work on small jobs, such as patios, walkways, and fireplaces.

Training, Other Qualifications, and Advancement

Most brickmasons, blockmasons, and stonemasons pick up their skills informally, observing and learning from experienced workers. Many others receive training in vocational education schools or from industry-based programs that are common throughout the country. Another way to learn these skills is through an apprenticeship program, which generally provides the most thorough training.

Individuals who learn the trade on the job usually start as helpers, laborers, or mason tenders. These workers carry materials, move scaffolds, and mix mortar. When the opportunity arises, they learn from experienced craftworkers how to spread mortar, lay brick and block, or set stone. As they gain experience, they make the transition to full-fledged craftworkers. The learning period on the job may last longer than an apprenticeship program. Industry-based training programs offered through companies usually last between 2 and 4 years.

Apprenticeships for brickmasons, blockmasons, and stonemasons usually are sponsored by local contractors, trade associations, or by local union-management committees. The apprenticeship program requires 3 years of on-the-job training, in addition to a minimum 144 hours of classroom instruction each year in subjects such as blueprint reading, mathematics, layout work, and sketching.

Apprentices often start by working with laborers, carrying materials, mixing mortar, and building scaffolds. This period generally lasts about a month and familiarizes the apprentice with job routines and materials. Next, apprentices learn to lay, align, and join brick and block. They also learn to work with stone and concrete, which enables them to be certified to work with more than one masonry material.

Applicants for apprenticeships must be at least 17 years old and in good physical condition. A high school education is preferable; and courses in mathematics, mechanical drawing, and shop are help-

ful. The Associated Builders and Contractors and International Masonry Institute (IMI), a joint trust of the International Union of Bricklayers and Allied Craftworkers and the contractors who employ its members, operates training centers in several large cities that help jobseekers develop the skills needed to successfully complete the formal apprenticeship program. In order to attract more entrants, IMI has expanded these centers in recent years to recruit and train workers before they enter apprenticeship programs. In addition, the IMI has a national training and education center at Fort Ritchie, MD. The national center's programs teach basic job skills for brick, stone, tile, terrazzo, refractory, and restoration work, as well as safety and scaffolding training.

Bricklayers who work in nonresidential construction usually work for large contractors and receive well-rounded training—normally through apprenticeship in all phases of brick or stone work. Those who work in residential construction usually work primarily for small contractors and specialize in only one or two aspects of the job.

With additional training, brickmasons, blockmasons, and stonemasons may become supervisors for masonry contractors. Some eventually become owners of businesses employing many workers and may spend most of their time as managers rather than as brickmasons, blockmasons, or stonemasons. Others move into closely related areas such as construction management or building inspection.

Job Outlook

Job opportunities for brickmasons, blockmasons, and stonemasons are expected to be excellent through 2012. Many openings will result from the need to replace workers who retire, transfer to other occupations, or leave these trades for other reasons. There may be fewer applicants than needed because many potential workers prefer to work under less strenuous, more comfortable conditions.

Employment of brickmasons, blockmasons, and stonemasons is expected to increase about as fast as the average for all occupations over the 2002-12 period, as population and business growth create a need for new houses, industrial facilities, schools, hospitals, offices, and other structures. Also stimulating demand will be the need to restore a growing stock of old masonry buildings, as well as the increasing use of brick and stone for decorative work on building fronts and in lobbies and foyers. Brick exteriors should remain very popular, reflecting a growing preference for durable exterior materials requiring little maintenance.

Employment of brickmasons, blockmasons, and stonemasons, like that of many other construction workers, is sensitive to changes in the economy. When the level of construction activity falls, workers in these trades can experience periods of unemployment.

Earnings

Median hourly earnings of brickmasons and blockmasons in 2002 were \$20.11. The middle 50 percent earned between \$15.36 and \$25.32. The lowest 10 percent earned less than \$11.55, and the highest 10 percent earned more than \$30.66. Median hourly earnings in the industries employing the largest number of brickmasons in 2002 are shown below:

Nonresidential building construction	\$22.12
Foundation, structure, and building exterior contractors	20.26

Median hourly earnings of stonemasons in 2002 were \$16.36. The middle 50 percent earned between \$12.06 and \$20.76. The lowest 10 percent earned less than \$9.43, and the highest 10 percent earned more than \$26.59.

Earnings for workers in these trades can be reduced on occasion because poor weather and downturns in construction activity limit the time they can work. Apprentices or helpers usually start at about 50 percent of the wage rate paid to experienced workers. Pay increases as apprentices gain experience and learn new skills.

Some brickmasons, blockmasons, and stonemasons are members of the International Union of Bricklayers and Allied Craftworkers.

Related Occupations

Brickmasons, blockmasons, and stonemasons combine a thorough knowledge of brick, concrete block, stone, and marble with manual skill to erect attractive, yet highly durable, structures. Workers in other occupations with similar skills include carpet, floor, and tile installers and finishers; cement masons, concrete finishers, segmental pavers, and terrazzo workers; and plasterers and stucco masons.

Sources of Additional Information

For details about apprenticeships or other work opportunities in these trades, contact local bricklaying, stonemasonry, or marble-setting contractors; the Associated Builders and Contractors; a local of the International Union of Bricklayers and Allied Craftworkers; a local joint union-management apprenticeship committee; or the nearest office of the State employment service or apprenticeship agency.

For general information about the work of brickmasons, blockmasons, or stonemasons, contact:

➤ International Union of Bricklayers and Allied Craftworkers, 1776 I St. NW., Washington, DC. 20006.

For information on training for brickmasons, blockmasons, and stonemasons, contact:

➤ Associated Builders and Contractors, Workforce Development Department, 4250 North Fairfax Dr., 9th Floor, Arlington, VA 22203.

➤ International Masonry Institute, Apprenticeship and Training, The James Brice House, 42 East St., Annapolis, MD 21401. Internet: <http://www.imiweb.org>

Information about the work of bricklayers also can be obtained from:

➤ Associated General Contractors of America, Inc., 333 John Carlyle St., Alexandria, VA 22314. Internet: <http://www.agc.org>

➤ Brick Industry Association, 11490 Commerce Park Dr., Reston, VA 22091-1525. Internet: <http://www.brickinfo.org>

➤ National Association of Home Builders, 1201 15th St. NW., Washington, DC 20005. Internet: <http://www.nahb.org>

➤ Home Builders Institute, 1201 15th St. NW., Washington, DC 20005. Internet: <http://www.hbi.org>

➤ National Concrete Masonry Association, 13750 Sunrise Valley Dr., Herndon, VA 20171-3499. Internet: <http://www.ncma.org>

There are more than 500 occupations registered by the U.S. Department of Labor's National Apprenticeship system. For more information on the Labor Department's registered apprenticeship system and links to State apprenticeship programs, check their website: <http://www.doleta.gov>